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The Logic of Letting Go: Family and Individual Migration from Rural Bangladesh

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Abstract

This paper studies rural-urban migration by married males in Bangladesh as a two-outcome process consisting of individual moves and family moves. The family/individual distinction is relevant to issues of rural development, urban planning, and old-age dependency since family migration involves the transfer of not only a conjugal family's production, but also its consumption, to the city. The paper presents the results of a logistic hazard analysis of the migration patterns of men in Matlab Thana over a three-year period from 1984 to 1986, employing surveillance and census data. Results show that family migration is more likely than non-migration or individual migration among men from households or communities that lack the media of urban-rural cooperation, long-term insurance, and spousal support that facilitate temporary individual migration in Bangladesh's dual economy. These media include land, access to land, and adult male relatives. The analysis also frequently draws on results of two qualitative field projects, conducted in rural and urban areas, which frequently generate predictions for the analysis.

I. Introduction

In our attempts to unify the patterns and determinants of migration under one theoretical umbrella, demographers and economists often ignore the heterogeneity in migration pattern and motivation that exists in many sending populations. This paper looks at rural-urban migration by married, rural Bangladeshi men not as a single flow, but as a two-flow system involving men who move alone (referred to as "individual migrants") and those who move with their conjugal families (referred to as "family migrants"). An iterative cycle of qualitative fieldwork and exploratory quantitative analysis determined that a simple mover-stayer model of rural-urban migration would mask crucial differences in the motivation, practice, and results of the two forms of migration. Given the traditional practice and economic incentives for individual, circular migration, this paper asks why some married males would instead migrate with their conjugal families.

The distinction between family and individual migration is essential for understanding migration's impact on both the movers and stayers, altering the way we should look at issues such as elderly support, rural economic development, and urban planning. Family migration not only moves a conjugal couple's *production* to the city, but also its *consumption*. Individual migration moves only an adult male to a city, while family migration also moves his wife and children, creating more complex housing, consumption, and security needs. On the rural side, family migration may deprive a parent of a source of financial transfers as well as a daughter-in-law, the traditional provider of care.

The general framework for this paper emerges from an iterative cycle of quantitative data analysis and collection of qualitative case study data. This method of "grounded demographic inquiry" tries to bridge unnecessary gaps between the theoretical and the contextual, the

individual and the social, and the empirical and the critical. In keeping with this approach, sections two and three synthesize theoretical background with the findings of two extensive qualitative field projects conducted in urban and rural Bangladesh in 1996 and 1998.

Quantitative hypotheses focus on the contrast between the distinct economic roles of individual and family migration. The spouses and children of individual migrants continue to consume most of their income in the rural area and the entire conjugal unit draws long-term security from urban-rural relationships and parental resources. Conjugal families that migrate as a unit, on the other hand, shift most consumption activities to the city and typically draw long-term security from strictly-urban relationships (Kuhn 1999). While individual migrants derive security from the diversification of existing in two economic sectors at the same time, family migrants sacrifice diversity to avoid the inefficiencies of existing in two sectors. Section two outlines the urban- and rural-side benefits of existing in two sectors and practicing individual migration. Section three outlines factors that might limit the efficiency of a two-sector existence and lead to family migration within a traditional pattern of individual moves. These factors, which center on a potential migrant's need for cooperation and support and an origin household and community's ability to provide it, generate predictions for the statistical model of family and individual migration included in Section 4. The paper concludes with a discussion of research and policy implications stemming from an understanding of family and individual migration.

II. Migration in Bangladesh: The Logic of Not Letting Go

Migration from the southern districts of Bangladesh to cities within Bangladesh and to other countries is a highly developed process. In areas like Matlab, the study area, it is a rare adult man who can claim that neither he, his father, nor his brothers has ever spent more than six

months in a city or another country. Figure 1 shows that between mid-1982 and 1996, net out-migration removed a net total of 40,327 people, of which 25,598, or 63% of this number, was due to migration to cities. Net out-migration to urban areas over this period counterbalanced 40% of the area's substantial natural increase.

Migrants also transfer considerable amounts of capital from urban to rural areas, providing a major engine of economic growth that is not subject to the same financial risks as rural agricultural production. Among a random sample of age 50+ Matlab residents in 1996, 18% of all household income and 27% of migrant-sending household's income came from net remittances (both urban-rural and international), and 25% of all households received half or more of their household income from remittances (Kuhn 2000b).

The central role of remittances in Matlab is not a *necessary* extension of extremely high gross rates of out-migration, however. Studies in other settings have shown that, even in areas of high out-migration, remittances often do not comprise a substantial proportion of income and net flows of capital can often move from rural to urban (Connell et al. 1976). Migration is economically important for Matlab because of the dominant pattern of circular movement (Afsar 1994), particularly by adult males who bear responsibility for parents and traditionally inherit parental wealth. Migrants return after short trips that achieve specific goals or result in failure, but they also return after long periods in the city (Figure 2). Survival curves of return migration in the years following migration episodes initiated between 1982 and 1984, censored for termination of observation but not for death (and thus understating return), show that married migrants who left their homes for more than six months had a 65% risk of return if they had moved alone and a 46% risk it they had moved with family (Kuhn 1999). For those who had

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already been in the city four years, subsequent risk of return over the coming years was still 42%

for individual migrants but only 16% for family migrants (Kuhn 1999).

An Origin Household's Demand for Circular Migration

The pattern of circular migration and the ubiquity of remittances are natural extensions of

the processes that created mass migration from the Matlab area.[1] Matlab is located on the

Dhonnogoda and Gumti Rivers, in the deltaic flood plain of the Meghna River. Most households

depend on underwater rice cultivation during the flood season (June-September) for their primary

staple crop. Almost all land outside of densely settled homestead plots is submerged throughout

the flood season, inducing extreme yearly cycles in transport, nutrition, labor, and commodity

prices (Chen et al. 1979). During the flood season, small landholders and sharecroppers cover

short-term deficits by taking loans in terms of high, pre-harvest grain prices and repaying them

through the sale of grain at lower, post-harvest prices (Jensen 1987; Jahangir 1979). The yearly

cycle of debt at unequal terms takes place in a setting of high agricultural risk and inadequate

capital markets. This creates a system in which downwardly mobile households lacking in

manpower, ambition or social patronage yield their land to upwardly mobile households through

a gradual process of loan, mortgage, and liquidation (Cain 1978; Jensen 1987).

Given these constraints, migration stood as an obvious source of capital for Matlab, an

area that is both within striking distance of most major migrant destinations and historically

endowed with social and political power.[2] Households running an agricultural deficit can use

remittances, instead of loans, to finance their agricultural inputs and secure their joint holdings.

Households running a surplus can use remittances to finance loans to other households, mortgage

land in, and purchase land. Matlab's historic district, Comilla, sent more net out-migrants than

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any other district between 1974 and 1981, primarily due to male migration, and trailed only neighboring Faridpur and Noakhali in net out-migration rate (Nabi 1992).

Migration's role as a remedy to capital market failures was first codified in the New Economics of Labor Migration, which suggested that families could gain access to credit and insurance by diversifying their economic *portfolios* in two sectors rather than one (Stark 1982; Stark and Bloom 1985; Stark and Levhari 1982). These researchers saw migration as a potential tool for families in Less Developed Countries (LDCs) to realize their economic potential in spite of constrained access to credit and insurance. Migrants would maintain an active interest in rural economic activities, send remittances, receive assistance during periods of urban transition or crisis, and potentially return home (Afsar 1994).

Work in other settings has demonstrated migration's role in easing capital market constraints, particularly for households with small but still significant land holdings. Such households, it is argued, need insurance and credit more than either landless households, who have few assets to insure or improve, or large land holders, who can self-insure and self-finance (Taylor and Wyatt 1996). In the context of temporary migration from Western Mexico to the United States, migration serves as a hedge against economic uncertainty, illiquid land resources, and undeveloped capital markets, loosening economic constraints and promoting economic growth for migrant-sending households (Massey and Espinosa 1997; Taylor and Wyatt 1996; Massey and Parrado 1994). Lucas and Stark (1985) show that migrants from rural Botswana are more likely to send remittances to origin households that offer heritable assets, particularly if the migrant is a son who stands to inherit the assets, and particularly if those assets are threatened by an economic crisis. These findings and others support Stark's notion of a "mutually beneficial

intertemporal self-enforcing contractual agreement" by which a migrant and origin household co-insure out of natural familial affinity and mutual economic benefit (Stark and Katz 1986).

A Migrant's Demand for Circular Migration

While rural capital constraints explain why an origin family would benefit from circular migration if migrants remained cooperative and supportive, they do not fully explain why migrants would actually provide support after migration. Continued support and cooperation actually appear to contradict the historical pattern of permanent rural-urban migration and separation from rural communities practiced in industrialized countries (Durkheim 1951; Wirth 1938). This story is codified in the Wage Differential Model of migration, which posed migration as the equilibriating solution to the unequal spatial distribution of economic opportunity (Lewis 1954; Ranis and Fei 1961). Wage differential models predict migration as a maximization of individual economic utility in response to a differential between expected income in the destination area and current income in the origin area (Todaro 1969; Sjaastad 1962). This decision does not consider the utility of non-migrant members of the origin community and thus does not account for remittances, return migration, or any other form of destination-origin cooperation. Migration only benefits those left behind indirectly, through the wage equilibrium resulting from changes in the supply of labor in the origin and destination areas (Lewis 1954; Ranis and Fei 1961).[3]

Migration as an individualistic process finds extensive support in the literature on migration, urbanization, and industrialization in Europe, North America, and more recently, East Asia (Goode 1963; Thornton et al. 1992). In such transitions, migration and its extensive financial returns gave children distance from, freedom from, and even power over their parents

by ending dependence on parental assets (Caldwell 1982). A few generations after industrialization in Europe and America, fertility had declined below the replacement level and populations had shifted from predominantly rural to being as much as 80% urban. Familial means of elderly support had largely been replaced by governmental means. More recently in East Asia, urbanization is credited with causing shifts from extended family systems to nuclear, and from high fertility to low in the space of one generation (Thornton et al. 1992).

In contrast to these developed economies, Bangladesh's has never facilitated urban settlement, retirement, or child rearing on a mass scale. Since even most formal employment typically entails low salary and few benefits such as health care, retirement insurance and unemployment insurance, migrants depend on parental resources for 1) security against unemployment or disability, 2) a setting for low cost child-rearing, 3) an outlet for investment of surplus income, and 4) a setting for retirement.[4] Limited urban options make urban-rural co-insurance as important for migrants as it is for origin families. Inheritance of parental resources remains as essential for a migrant's future as it is for his non-migrant brother's.

Rural dependence is to some extent a by-product of low economic output, but it may also be a functional necessity of economic structure. In a number of export-oriented economies in Asia and Africa, migrants depend on urban-rural cooperation as described above (Shaw 1988; Wolpe 1975; Lipton 1980). As an unlikely consumer of the goods he produces, the export-sector worker does not represent a potential market for his products as in the Fordist model of economic growth that drove American industrialization (Hirschman 1958; Piore and Sabel 1984). His employer's primary goal would be the maintenance of low labor costs that would in turn create low prices for eventual consumers in import economies. A rural origin household with a small

amount of land can provide a migrant with a refuge during periods of disability, retirement, or unemployment and provide support and housing for his wife and children, complementing his urban income and subsidizing these costs for the urban sector (de Janvry and Garramon 1977; Meillassoux 1972).[5]

While Bangladesh's economy is not built only on export-oriented production, a number of factors make maintenance of low labor costs and circular migration important elements of the economy. The initial source of urban jobs was the jute-processing sector, which produced largely for export. Jute mills maintain bachelor housing for workers, which facilitate the rearing of children in the village at a lower cost and prevents workers from developing strong ties or established residences in the city. Compensation packages typically include subsidies for bachelor housing which are lost if a worker chooses to live off site instead of in staff quarters. Individual migration is thus more cost effective for workers as a result of incentives instituted by mill owners. Mills also allow extensive and flexible leave for harvesting activities, which allows migrants to maintain agricultural income as a complement to labor market income. More importantly, continued participation in the agriculture sector secures a worker's agricultural holdings, which ensure a source of retirement income in lieu of retirement or pension benefits.

Upon retirement, mill workers in the qualitative sample typically received an option of a small pension, relatively insignificant in a household budget, or a lump sum bonus of between 60,000 and 150,000 taka ($660-$3,300), or enough to purchase 0.1 and 1 acre of agricultural land. Workers also often received the right to bequeath their jobs to sons or sons-in-law, providing the retired worker with continued benefit from the mill and providing the mill with a new generation of landed workers. In the qualitative sample, most former mill workers had

actually lost their jobs prior to retirement, due to closures or layoffs, receiving smaller compensation packages.

While mill jobs now comprise a declining percentage of rural-urban migrant jobs, they have been replaced by jobs that require similar salary and benefit structures. Since most other factories in Bangladesh produce basic goods for local, *rural* consumption, they too have a stake in maintaining low production costs. Most offer dormitory housing or allow workers to sleep on the floor of the factory in lieu of some salary. Without access to company housing, workers typically live in rented bachelor housing, live with urban-based relatives, or informally share housing with other migrant workers. In addition to these local industries, current job growth comes primarily from the export garment sector, which also functions as an export-enclave, and future job growth will come from the petroleum sector, which will not only function as an export enclave, but also will provide jobs in areas where family settlement is impossible.

Individual, circular migration provides an effective solution to rural and urban market failures. Rural market failures limit production and security for households that exist strictly in the rural sector, creating demand for alternate income sources. The urban labor market provides jobs that can infuse cash into the rural economy, but only if earnings and benefits at these jobs are low enough to ensure the continued dependence of urban workers on rural assets. This creates an economic system in which families exist in two sectors, with production occurring in both sectors and consumption occurring only in the rural sector. While the system is an effective solution to the unequal spatial distribution of resources and markets, its continued practice is contingent on its continued *mutual benefit* and on the feasibility of physically existing in both sectors. The next section introduces factors that lead to breakdown in this system.

III. The Logic of Letting Go: Expectations for Analysis

Given the traditional pattern of individual, circular migration, this section outlines the motivations behind family migration and generates expectations for the quantitative model of migration presented in subsequent sections. In the quantitative analysis, "family migration" is defined as the simultaneous movement of a married man *and his wife* for a period of greater than six months. "Individual migration" refers to any movement in which a man travels *without his wife* for more than six months. While individual moves could include any number of other males or females (fathers, brothers, sisters, etc.), a great majority of moves of six months or greater (not seasonal moves, which often involve large groups) are undertaken by a lone migrant.

Family migration must remain distinct from "family settlement", a more general process that includes any moves resulting in the *urban settlement of a conjugal couple*. Settlement can result from family migration as well as from spousal unification following individual migration or urban marriage following individual migration. While similar themes of replacing urban-rural with strictly-urban security mechanisms can explain each form of family settlement, family migration episodes are distinct because they require the immediate acquisition of employment and housing without any period of preparation or capital accumulation. Family migration not only implies limited strategic planning, but it places constraints on employment decisions. The need to immediately support an entire urban family eliminates opportunities for training, apprenticeship, or long-term job searches, all of which could result in long-term wage increases. Ideal occupations for family migrants, and the most common among family migrants in the qualitative sample, are casual jobs such as rickshaw pulling and hawking. These jobs, requiring few contacts and brief job searches, offer roughly the same real earnings on the first day of

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employment as on the last.

Family migration, as a form of family settlement that involves even greater planning and opportunity constraints, differs from individual migration in a number of ways that determine its practice and its eventual impact on movers and stayers. 1) It includes proportionately more women and children. 2) It requires acquisition of a permanent dwelling instead of merely living with relatives or in hostels. 3) It separates a migrant's parents from a daughter-in-law, a primary source of elderly support and care. 4) It results, on average, in the weakening of urban-rural ties such as remittance-sending, urban-rural visits, and return migration. 5) It transfers not only the production of a child-rearing, conjugal family unit, but also its consumption (Kuhn 1999).

Given the compelling incentives for restricting consumption and security activities to the rural area (as in the previous section), it is these last two differences that primarily distinguish family migration from individual and drives *the logic of letting go.* Since the practice of individual, circular migration hinges on a cooperative, mutually beneficial relationship between a migrant and his origin household, family migration is typically the result of a breakdown in such a relationship due to factors affecting the migrant's demand for cooperation or the origin household's ability to supply it.

Reduced Demand for Urban-Rural Cooperation

If a migrant can purchase an urban home and accumulate savings or benefits that pay for retirement, unemployment, or disability, then his ***demand*** for rural consumption and cooperation may be low.[6] "Secure family migrants" resolve the complications of the two-sector migration pattern out of choice, because they do not need to depend on it.[7] In qualitative questioning, migrant families report a desire to settle in the city not only because of their jobs, but also

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because of strictly-urban aspirations for higher education for their children and amenities such as electricity, telephones, cars, and running water. Any rural activities are more motivated by duty, history, or political aspirations than by security.

Low demand for cooperation often leads more generally to urban *family settlement*, but this advantageous situation typically develops after an individual migrant enjoys urban success before marriage or while his wife remains in the village. *Family migration* may be a less likely path to family settlement for these motives, but the process should still respond positively to factors promoting independent urban security. The primary analytic variable of interest in this regard is *education*, which could enable acquisition of secure, high-wage jobs. While education is likely to promote the practice of any migration, family migration may be particularly more likely among respondents that have achieved the highest levels of schooling. Only the highest levels of schooling would secure jobs in the government, development, or professional sectors.

Limited Supply of Rural Cooperation and Support

A more common form of family migrant unit leaves an origin household that cannot *supply* long-term security or cooperation to the conjugal family members. A married male becomes a "vulnerable family migrant" when he cannot effectively maintain his family's consumption in the rural area and keep his production in the city.[8] Since potential migrants may also choose not to migrate at all, those who do choose family migration have typically exhausted all local options other than migration (see below).

Although most family migrants in qualitative samples were poor, their primary defining characteristics were the failure of their rural-urban security options and the strictly-urban measures they used to compensate for this failure. Security failure and limited event horizons

condition the choice of housing (typically in slums), employment (typically casual)[9], and urban social formation (typically extensi). Slums, contrary to their reputation as breeding grounds of crime, unrest, and poverty (Lewis 1966), offered qualitative respondents an effective solution to the failure of rural security. They provided a venue for construction of low-cost housing, often with recycled materials, and often on vacant, low-lying, or undesirable land (see Portes and Walton 1981 for general; Lomnitz 1973 for Mexico; Perlman 1976 for Brazil). Informal agricultural activities continued even in the urban setting. Most importantly, migrants of diverse social origins, unified only by mutual insecurity, formed strictly-urban social support and security networks to compensate for the failure of their rural alternatives.

A rural household or community's failure to provide security and cooperation results from the absence of a number of essential origin household endowments: physical assets, manpower, community economic opportunities, and social capital. The quantitative analysis focuses on the impact of the first three endowments on family and individual migration, while social effects are primarily reserved for another paper (Kuhn 2000a).

Physical assets offer long-term security, a complementary source of income during working years, a primary source of income during retirement, an outlet for investment of larger remittances, and a residence during retirement. By far the most important asset in Matlab is land, which is measured here by position in the distribution of agricultural land.[10] In addition to land's role in determining the strength of the urban-rural security function, specific losses of land often precipitate family migration episodes. Loss of land can occur quickly through ecological crisis or gradually through the cycle of debt described in the previous section.

Remaining in the village after land loss requires a substitute source of income and

continued access to housing, either on one's own homestead plot or on land rented or donated from others. Ecological crises can destroy homestead land, but economic debts are not likely to result in the seizure of homestead lands unless also coupled with extreme social weakness.[11] In the absence of productive land, families replace agricultural income with income from activities such as sharecropping, labor, service, informal foraging, and seasonal migration, although such activities depend on economic climate, seasonality, the strength of a family's local *social ties,* and the family's traditional economic activities. Even after loss of homestead land, households often find refuge in donated land or on a wealthier household's unused land, and may only leave the village permanently in the presence of other social or manpower deficiencies. Loss of agricultural and/or homestead land may, however, precipitate a chain of events that eliminates non-migration or seasonal migration as a viable option. A qualitative research respondent summed up such an experience:

> We had no house to live in our village. We stayed in the road for two years. The road was also undertaken by water. If we stay in other people's land then we have to work for them, but we had nothing to eat. We had to work for them although we had nothing in our stomachs. So we had decided to come here. If we can earn just 50 Taka per day (approx. US$1.05), we can manage our food here. If I had land, then I would have lived there by harvesting the land... We lived in their land. That is why they told us to leave the place and go to another place like the town. It is their loss to help us.

A village leader may help a family stay in order to receive its labor and service and protect the reputation of the lineage, but only if that household is tightly integrated into the social network.

Without two rounds of land data, it is impossible to model the effects of specific land transfers on migration, so the analysis of land holdings will be limited to its more general role in facilitating individual or no migration versus family. The impact of *social ties* and family

economic tradition on generating economic alternatives to family migration is modeled with measures of access to land through sharecropping or rental. The land measures divide men from landless households (the bottom quartile) into those with temporary land access and those with no access, with the former expected to be more likely to undertake individual or no migration.

Individual migration may also be more likely relative to family migration in the presence of *community economic opportunities* that facilitate the productive investment of remittances. While physical asset holdings prior to migration provide a pre-existing safety net to migrants, future asset opportunities might offer an additional incentive to participate in urban-rural cooperation. Qualitative respondents, even those who had settled in the city, emphasized that the rural area is a more effective place to invest the small amounts of surplus income accessible to rural-urban migrants. Rural investments in land, ponds, orchards, businesses, and agricultural equipment have lower entry costs than urban businesses, buildings, or securities. Depending on the level of opportunity in a particular origin area, even a landless migrant might be better off drawing long-term security from the rural area and thus better served by individual migration.

If individual migration is to be used as a cooperative investment tool then its practice, relative to family migration and no migration, should respond positively to opportunities to purchase land and the effect should be particularly strong for migrants from households that do not already have land. The quantitative analysis measures opportunity for purchase land by using measures, divided into quartiles, of agricultural land acreage per person in each village. Land per person should be inversely related to the price of land in a village and directly related to the overall level of other economic opportunities. The analysis is expected to show that individual migration is more likely than family migration among respondents from villages with high levels

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of land per person, particularly if the respondents are landless themselves.

Urban-rural security and cooperation also depend on sufficient **manpower**, particularly adult males, in the rural origin household or community. Manpower is economically important for maintaining or increasing control and productivity of physical assets. More importantly, rural adult males provide physical security and logistical support to a migrant's conjugal family in his absence. Rural women typically depend on adult males due to the restrictions of *purdah*, a system under which the status of the lineage is determined by its ability to keep female members within the confines of their *baris*[12]. Although *purdah* is observed less strictly for landless women, it is still difficult for most women go to the market, doctor, clinic, or small store without a male escort. Migrants who can no longer provide this support for their wives depend on adult male relatives to compensate.[13]

Dependence on a man other than one's own husband, particularly a non-householder, endangers the household financially, nutritionally, physically, and psychologically. If a male relative is unable to provide the expected support, a woman may be forced to break *purdah* to provide for herself and her children. Breaking *purdah*, while sometimes a necessary action, exposes a woman and her children to immediate risk as they travel and ultimately places them at further risk of attack or manipulation due to diminished household respect. While an adult male relative can mitigate the risks, he can only provide assistance within the constraints of his existing household obligations. Male relatives may also pose their own economic or physical threats in the absence of the female household head's husband.

A male migrant can limit the difficulties of separation by returning to his origin village to visit his family, conduct agricultural activities, shop, and participate in village social activities,

but this does not fully substitute for the security and functional benefits of day-to-day presence. Visits also expend a significant portion of urban earnings, requiring expenditure for transport and gifts as well as the opportunity costs of lost labor. While opportunity costs do not affect salaried workers, they have a major impact on casual laborers, potentially limiting the frequency of trips and consequently their role in mitigating the consequences of spousal separation.

Costs are especially important for migrants who must expend a great deal of time or money to reach their origin villages. A typical trip from Dhaka to Matlab requires six hours travel and about 30 taka (US$0.60) boat fare, making the high costs of spousal separation less significant than for the major sending areas in the Barisal Division that are often up to 20 hours and 100 taka away from Dhaka. Family migrants participating in the qualitative study indicated that the costs of a long weekend sojourn from Dhaka to Barisal Division can be around 500 taka. Along with 400 taka in lost income at 100 taka per day, a four day trip can consume over 30% of a month's potential earnings. While both travel costs and opportunity costs due to travel time are less for Matlab, individual migration would still be a far more palatable option if a potential migrants were assured of spousal support from adult male household members. The quantitative analysis looks at household nucleation as a predictor of family migration as well as other measures of access to within-household kin. Since the analysis takes place in one concentrated geographic area, it will not be possible to model the impact of distance from the destination area.

IV. Data and Methods

The analysis employs data from the Demographic Surveillance System (DSS) of the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B), which has collected monthly information on every birth, death, marriage, divorce, and migration (of 6

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months or longer) for each household in the 149 village ICDDR,B study area in Matlab since 1966. Migration files include basic information on the migrant, date of migration, and episode-specific data such as destination and cause of a move.

DSS carried out a number of censuses in the Matlab study area as part of its provision of maternal and child health and family planning services (for more information, see Fauveau 1994). For the purposes of this analysis, the most important is the 1982 census, which includes an enumeration of individuals and a household socio-economic survey. Households in the 1982 census serve as the base population for analysis and contribute data on household land holdings, temporary land access, household size and structure, religion, occupation, and education. Household land information is also used to create a village-level land availability variable. Variables are described in Table 1 with one observation for each person-year included in the multivariate analysis.

Starting from the population of adult males (over age 15) in the 1982 census (52,563 males), a person-year observation is created for each year from 1984 to 1986 in which that man was alive, living in the DSS area and married.[14] Census records are matched with DSS out-migration files (including all moves urban, rural, and international), death files, marriage files, and divorce files to update a man's status. A man is censored (no observation is included for any subsequent year) if he died, divorced, or migrated anywhere out of the DSS area in the previous year. A man who was single in 1982 is added if he subsequently married. Men who migrated into the DSS area after the 1982 census are not included. The resulting file contains 97,990 observations representing 35,377 eligible men (Table 2). Of the 35,377 men, 30,041 contributed observations in all three years, 2,531 contributed two, and 2,805 contributed only one. The file

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contains 32,858 observations from 1984, 32,606 from 1985, and 32,526 from 1986.

The person-year file for married men is matched to the DSS out-migration records for the years 1984 to 1986. The dependent variable records whether a man moved as an individual migrant, moved as a family migrant, or did not move at all in a given year. A migration event is coded as a family move if the man moved on the same day as at least one married adult female household member.[15] An individual migration episode is coded if the man moved alone or with any group of persons not including a married adult female.[16] For both types of migration, an event is recorded only after six months of living away from the household, thus ignoring most seasonal migration episodes. Of the 97,990 observations, 485, or 0.5% of observations, migrated individually, and 593, or 0.6%, migrated with family during the given year.[17] While these percentages are small, they measure the practice of migration only in a given year rather than over the life course. The exclusion of unmarried men also eliminates men in the years of the highest individual migration propensity.[18] The total number of males, age fifteen and up, who migrated from Matlab to a city between 1984 and 1986 was 3,215. so although migration is more common among unmarried men, married men still accounted for 34% of all episodes.

Table 3 shows the relationship to household head for persons ever included in the models. Because all of the men are married, a majority are heads of the household, but that percentage varies with the outcome variable. Individual migrants are evenly split between heads or sons of heads. A much higher percentage of family migrant men are heads of their own households, but both migrant groups are still less likely to be heads than non-migrants. This gap reflects the crucial role of household heads, who migrate only if no one else is available. It also reflects the younger age of the migrants (see below).

The event file is constructed as a competing risk, multinomial logistic hazard model. For each year until an event occurs or a respondent is censored, the model predicts the odds of each given event ($j = 1,2$) relative to the odds of experiencing a reference event ($j = 0$). In this case, the two outcomes are individual migration during the year and family migration during the year while the reference event is no migration during the year. Using the "mlogit" function in STATA (STATA Corporation 1997), a maximum likelihood procedure estimates a vector of coefficients β'_j according to the following equation:

$$\Pr(Y_i = j) = \frac{e^{\beta'_j x_i}}{\displaystyle\sum_{k=0}^{2} e^{\beta'_k x_i}}$$

where Y is the outcome, x is the vector of dependent variables, and j references a specific outcome. Since this estimation can result in any number of solutions, a reference category is chosen for which all values of β are set to 0 (outcome $j = 0$). For each outcome j, a coefficient β_{ij} can be interpreted by the following equation of the log-odds:

$$\ln\left[\frac{P_{ij}}{P_{i0}}\right] = \beta_j x_i$$

where P_{ij} is the probability of the given event and P_{i0} is the probability of the reference event.

In presenting the multinomial results, it is important to consider whether the model satisfies the conditions of the "Independence of Irrelevant Alternatives" (IIA). Under this assumption implicit in the equations of the multinomial model, elimination of choice A from the set of choices must result in the reallocation of observations previously making choice A to choices B and C with the same relative frequency that they were chosen when choice A was still

available. As an example, IIA assumes that asking "which form of migration would you choose if you migrated at all" would produce the exact same relative proportion of family migrants versus individual migrants as asking "which form of migration would you choose?" If the two choices are to some extent mutually exclusive and the decision processes are conditional on some other variables, then this assumption may not be appropriate.

For this model, the elimination of either migration event (family or individual) from the choice set would have little impact on the odds of the other form of migration since the proportion of observations having either of those outcomes is small. The elimination of the choice of no migration is crucial, however, since 99% of the observations have this outcome and the results present direct comparisons of the odds of individual versus family migration. While individual and family migration are by no means mutually exclusive outcomes, there is some indication that certain socially and economically marginal rural households may be unable to access urban employment in established businesses or factories through contacts in those establishments. Since most men who take these jobs migrate individually, some men may not be eligible for individual migration through that route. For those men, the first hypothetical question would be inappropriate. Most men, however, have some exposure to formal employment networks and, more importantly, they have relatively unfettered access to less formal urban jobs, which bring both individual and family migrants to the city.

Hausmann specification tests were employed to test the validity of applying the IIA assumption by comparing the coefficients and standard errors of models in which any of the outcomes was eliminated against models containing the full set of outcomes. While all tests showed no significant differences between any possible two-outcome model and the three-

outcome model (at the p<0.01 level), these tests are not foolproof. The complex conditionality dividing segments of the population who have more or less access to individual migration networks should be investigated more thoroughly in future analyses.

Tables 4 and 5 present the results of a multinomial model where no migration is the reference category and coefficients show the effect of a variable on the log-odds of the given event relative to no migration. Results in the text refer to Tables 4 and 5 as well as the odds and errors for family migration relative to a reference category of individual migration. Coefficients for family migration relative to individual migration would represent the difference between the family migration and individual migration coefficients displayed in Tables 4 and 5.

V. Results

Household Structure and Role

Table 4 presents the first model, predicting family and individual migration in terms of individual attributes, household structure, and household land holdings. The first variable divides men by the three primary roles within a household: living in a nuclear household (reference category), head of an extended household, and non-head of an extended household.[19] These variables indicate the availability of adult male kin since an extended household is defined here as having two or more married adult males present. Individual migration (relative to no migration) is far more likely among adult males who are living in extended households and are not the household heads, a group that has more opportunities for cooperation with adult males compared with the other groups. This finding supports the expectation that adult males facilitate individual migration. The potential for inheriting land from household head fathers could also nurture an individual migration pattern. Heads of extended households are not significantly more

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or less likely to migrate individually (relative to no migration) than nuclear household members.

Family migration is significantly less likely (relative to non-migration) among *heads* of extended households than it is among nuclear household members, while *non-heads* of extended households show no significant difference in family migration propensity from nuclear household members. When the hazard of family migration is compared to the hazard for *individual migration* (not in tables), the coefficients for family migration among both heads ($\beta = -0.552$, $p<0.050$) and non-heads ($\beta = -0.512$, $p<0.005$) of extended households are negative and statistically significant. Although any form of migration is on the whole much less likely for an extended household head (due to the obligations of being the head), both head and non-head members of extended household members show a similar relative preference for individual migration over family migration if they migrate.

The first model also predicts migration in terms of respondent's age during the given year, divided into under 35, 35 to 50, and 50 or more years of age. Those under 35 were not further divided since the typical age at marriage for males in this population is 27. The likelihood of both forms of migration declines with age and both migrant groups are significantly younger than non-migrants, but family migrants are also an older group than individual migrants. While individual migration is significantly less likely among the middle age group than the youngest group, the middle group continues to have the same high likelihood of family migration. The age distributions of ever-family migrant, ever-individual migrant, and non-migrant men in this analysis differed accordingly. Individual migrants have a mean (median) age of 34 (30), compared to 36 (33) for family migrants, and 42 (41) among non-migrants. Among migrants, the modal age among individual migrants was 24 compared to 30 among family

migrants.

Being a member of a Hindu household and working as a fisherman also have strong negative effects on both forms of migration, particularly on individual migration. While Hindus often migrate in family units, they typically move to India rather than to cities in Bangladesh. Fisherman, who are disproportionately Hindu as well, migrate seasonally for much of the year on fishing expeditions, which preclude migration to cities.

In addition to aspects of household structure contained in the household role variables, Model 1 also includes overall household size and the specific presence of single adult males (age 15+). Single males might be particularly likely to serve as outlets of economic cooperation during individual migration episodes, compensating for the absence of individual out-migrants, and thus might encourage the practice. While both variables could positively affect individual migration through increased complementarity of members, they may also negatively affect migration of a specific married male because each additional member, particularly an unmarried adult male, could migrate in place of the respondent. In the case of overall household size, there is a negative association with both forms of migration, particularly individual migration. The single adult male variables, on the other hand, show positive association with individual migration relative to no migration or family migration. This effect again points to the importance of household cooperation in a married male's practice of individual migration.

Multivariate Results – Land Holdings and Access

The other primary variable of interest in Model 1 is land access. Land is measured as a five-category variable. Three variables indicate the top three quartiles of overall household agricultural land holding.[20] The bottom quartile of landholding, which conveniently corresponds

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to households owning absolutely no agricultural land, is divided into those who have access to agricultural land through rental or sharecropping arrangements and those who have no land access either permanent or temporary (omitted category). These categories not only divide those with absolutely no rural productive capacity from those who have some limited capacity, but members of the bottom category are also those who are also unable to mobilize any social resources to gain temporary land access. The tables show increasing land holdings as they move down the table, with 1st quartile indicating the quartile with the most land.

Model 1 shows that land holdings have no association with individual migration. Family migration, on the other hand, is much less likely with increasing access to agricultural land, with men from each land-owning category significantly less likely to practice family migration at the $p<0.001$ level and those with rental access less likely at the $p<0.05$ level (compared to those with no land access). Family migration is also significantly more likely relative to individual migration (not shown) for all three land-owning categories at the $p<0.05$ level. While there is a gradient with increasing land holdings, the largest gap is between those with any land *access* and those with no access.

Multivariate Results – Education

Model 2 (Table 4, columns v through viii) introduces the respondent's education, which not only tests another aspect of "the logic of letting go", but could also alter the effects of land variables introduced above because of the significant correlation between respondent's education and household land holdings. Education is defined as a four category variable indicating either no education, one to four years of education, five to nine years, or completion of the Secondary School Certificate (SSC). The last category is roughly equivalent to ten years of education, but

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completion of the SSC exam also provides an employment credential. Model 2 shows positive associations between education and both forms of migration, but these associations take different form. The likelihood of individual migration is enhanced even at the lowest level of educational achievement (1-4 years, significant at $p<0.01$ level) compared to no education. There is a gradient in individual migration odds with each increasing level of education, with each increment significantly different from both those with no education and from the next lowest level of education.

Family migration appears to have a higher threshold for educational association. Cases with one to four years of education are no more or less likely to practice family migration than those with no education. While those with five to nine years of schooling are significantly more likely to practice family migration than not migrate at all, *individual migration* is still the more important form of migration for this group. When education rises to the level of ten years or more, however, its effect on family migration rises precipitously. The effect of SSC level education relative to no education on family migration is stronger than on individual migration (although statistically similar in direct comparison) and, more importantly, the increment from five to nine years up to SSC level education is far stronger for family migration at a statistically significant level. This suggests that while both forms of migration have positive educational selectivity, family migration is most important among the highly educated, or those who can likely access jobs that would provide the urban economic security and wealth to permanently settle in the city independent of urban-rural security ties.

As expected, the positive association between land holdings and education also led to an understatement of the true effect of land on both individual and family migration. When

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education is controlled, the negative effect of land on family migration increases, particularly in the top land holding quartile, which is far less likely to migrate with family once the association between the *top education category* and family migration is controlled. The association between *all levels of education* and individual migration had caused an understatement of the slight negative association between land and individual migration for all land categories, but even after controlling education, most categories still remain statistically similar to each other and the coefficients remain weak compared to those for family migration. With the education controls, all landed categories show no joint statistical difference from the landless, but the top category is less likely to send individual migrants than all other categories. The next table expands on the land findings by including measures of land availability in the village

Multivariate Results – Village Land Availability

Model 3 (Table 5, columns i-iv) introduces a measure of land availability, created from the total land owned by all village households divided by the number of persons in the village. This measure is broken into quartiles based on the distribution among adult males. Land access in the village measures wealth and economic opportunity in the village, as well as a household's potential to convert remittances into assets through the purchase or rental of land. Migrants, especially those who currently have no land, might be more apt to practice individual migration and cooperate with their origin households if they have greater opportunities to purchase income-generating assets for the future. Land availability should have no effect on family migration if these migrants are not concerned with potential rural opportunities.

The village land access coefficients strongly support the role of land availability, as respondents whose village land availability is in the middle two quartiles are much more likely to

practice individual migration instead of no migration compared with those in the lowest quartile, with differences significant at the $p<0.01$ level. Those in the top quartile have an almost significant increase in propensity to practice individual migration ($p<0.066$). The odds of family migration, relative to no migration, are not significantly associated with membership in the top two quartiles and only show a small and marginal association with membership in the third quartile from the top. Coefficients for individual migration relative to family migration are positive for the top three land availability categories, with joint significance at the $p<0.05$ level and a strong negative effect for the second highest quartile ($p<0.001$). The inclusion of village land access variables does not qualitatively change the main effects of household-level land holdings on either form of migration.

The hypothesis that greater cooperation (and thus individual migration) would be more important when there is greater economic opportunity also suggests that the village land availability variables would have a stronger association with individual migration among landless households, who would have the most to gain from an initial land purchase. Model 4 (Table 5, columns v-viii) introduces variables that interact household-level land holdings with village land availability. The model presents the same set of household-level land variables plus separate village land access arrays (in quartiles) for men from households *owning* no land (lowest *two* land categories) and men from households owning land.

When village-level land availability coefficients are interacted with whether a man's own household owns any land, a different picture emerges. For individual migration, the main effects for the household land variables are no longer statistically significant. The village land availability variables show some significance for those with and without land, but they play a far

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more important role in predicting individual migration *among men from landless households*. The effects of being in the middle two village land categories for men from landless households are strongly positive and significant at the $p<0.01$ level and the effect for being in the top category is significant at the $p<0.05$ level. These coefficients are far stronger than the analogous village land main effects in Model 3. Among landed households, the coefficients for increasing village land access are positive, but only the coefficient for being in the second quartile from the top is significant and the increased odds of individual migration do not match the increases among men from landless households. This shows that not only is individual migration more likely among men from villages where there is greater availability of land, but the availability of land in the village primarily induces men from landless households, who would have more to gain from purchasing land, to practice individual migration. Furthermore, these findings indicate that while landless households are slightly more likely than other households to practice individual migration relative to no migration when education is controlled (Model 2), this applies only to those landless households who live in villages with high land availability and thus greater opportunities to accumulate assets. Individual migration is thus more likely when it can be used to facilitate any kind of rural economic opportunity involving either a physical asset (land), a social asset (such as rental agreements) or a potential asset (future land purchase).

The effects of the village/household land interaction variables on family migration are not strong. Although the overall effect of increased village land availability on family migration is stronger among men from landless households, men from landless and landed households show no jointly significant difference in the effects of village land access. The overriding factor predicting family migration is still the household's own land holdings, with family migration

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much more likely in the absence of land. Men from households in the top land holding category are still significantly less likely to practice family migration versus no migration at the p<0.001 level and men in the second quartile are less likely at the p<0.05 level. Being in the third quartile or being landless but renting land have more ambiguous effects on family migration, but they are generally negative with slight dependence on the village's land distribution.

VI. Discussion and Conclusion

Using a technique of quantitative and qualitative exploration, this paper has modeled a common dependent variable in an uncommon way. The multiple outcome analysis of men's migration emerged from an exploratory understanding of the fundamental differences between individual and family migration and their roles in the household, local, and national economies of Bangladesh. The analysis has established that the determinants of family migration do indeed differ from the determinants of individual migration. Family migration is likely from origin households that, lacking both productive assets and access to productive assets, cannot provide sufficient security to their out-migrants or protection to the migrants' conjugal families. Family migration is likely among highly educated men who can form self-sufficient economic units in the city. Family migration is likely when a migrant cannot access enough adult male support to coinsure or to facilitate separation from his spouse. In addition to the importance of household resources in facilitating individual migration versus family migration, village-level variables also show that individual migration is more likely if a man's community offers greater opportunity for land purchase, particularly if that man's household currently holds no land of his own. Put generally, individual migration is borne of cooperation between migrant and origin household, functioning as an opportunity for enhancing long-term rural prospects through a temporary two-

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sector solution. Family migration, in contrast, is typically borne of an absence of the resources needed to make a two-sector solution both mutually beneficial and logistically feasible, leaving both migrant and origin household in need of new security options.

While theoretical and empirical distinctions between family and individual migration add a new layer to the migration literature, the results also bear on specific empirical and policy issues in Bangladesh. The sending of individual versus family migrants must be considered when modeling the determinants of post-migration behaviors such as remittance-sending and return migration, which in turn begs a reconsideration of migration's impact on investment, economic development, rural inequalities, and elderly well-being. Other papers from this project show that spouse's migration not only has a negative effect on a man's return migration, but also conditions the effects of variables such as land holdings, education, and origin household structure on return migration (Kuhn 1999). The background section has already discussed how family migration can condition urban housing, employment, and social decisions. Future work should use Matlab Health and Socioeconomic Survey (MHSS) data to model the effect of family and individual migration on remittances, both as main effect and conditioning variable, as well as the resulting impact of remittances on rural development and elderly well-being.

Family migration also has implications for the age/sex/socioeconomic distributions of urban populations. Family migration brings women and children to Bangladeshi cities in greater numbers than individual migration. Family migrants often stay in cities for longer than individual migrants, introducing urban aging issues (Kuhn 1999). If family migration develops as rural population pressure further damages the supply of urban-rural security, additional women and children might be expected in the city, particularly those who are poor, socially isolated, and

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insecure. In order to assess the future importance of family migration, analysis of nationwide community-level data should model the relative importance of family migration in terms of local ecological conditions, infrastructure, labor markets, land markets, and distance from major destination areas.

The unique situations of family migrants create a changing list of needs for Bangladeshi urban planners and service providers. If Bangladesh's population, with 100 million rural people and 25 million urban ones, grows to an expected 220 million with no increases in rural retention, then its percentage urban could grow from 20% to 60% in the next 30 years (United Nations 1996). Given rapid population increases, the continued concentration of rural land holdings, and the already prominent practice of family migration, it is safe to say that rural areas in Bangladesh cannot continue to subsidize cities in the way they have in the past. While vulnerable family migrants can always answer their inadequate rural security functions with innovative informal security mechanisms, a largely informal and casual urban economy is unlikely to generate economic growth. Ultimately, even migrants with access to formal sector jobs may find their rural security functions compromised by decreasing land holdings at both the mean (due to population pressure) and median (due to concentration of holdings).[21]

Bangladesh's migration pattern and its economic antecedents introduce a number of potential problems that could become increasingly apparent in the coming years. 1) Individual migration separates men from their wives, children, and parents, introducing a number of safety, psychological, health, and economic risks. 2) The dualist economy restricts large, productivity-enhancing investments to urban areas while rural investments are directed to inequality-enhancing investments in land. 3) Individual migration appears to be unsustainable given that its

effectiveness depends on land holdings, which are declining due to increased density and increased inequality, and manpower, which is compromised by rapid fertility decline. While economic pressures and structural factors demand the practice of individual migration for the benefit of both migrants and their families, intense rural pressures and systemic unsustainability may eventually cement family migration as a dominant form of migration, robbing each sector of the benefits it currently draws from the other without resolving the security risks inherent to a low-wage, low-benefit urban sector and a low-output, market-deficient rural sector.

While the results of this research can do nothing to rectify the global economic disparities that constrain rural access to capital markets or urban access to quality employment, they do suggest policy that could generate economic growth and increase personal well-being within these constraints: Bangladesh should attempt to decentralize economic and industrial development by ending policies and subsidies that favor infrastructural expenditure and financial investment in major cities. While this issue has been discussed for years in Bangladesh, the family/individual migration dichotomy introduces a number of new compelling reasons to do so. Currently, urban jobs are primarily available only in Dhaka and Chittagong, meaning that all but 20% of the population must resort to two-sector existence or family migration to gain access. Placing jobs not in villages, but in small cities within commuting distance of villages, could solve a range of problems exacerbated by the two-sector model, including rural inequality, women's empowerment and safety, weakening elderly support and co-residence, and stagnant agricultural productivity.

While decentralization efforts are hampered by existing infrastructural inequalities and sluggish local demand for industrial products, the policy could still apply to export-enclave

production and it would take advantage of Bangladesh's greatest potential asset: high rural population density. A typical small city in Bangladesh, while not itself containing enough people to support major industries, is within less than one hour commute, even with an undeveloped transport system, from hundreds of thousands of workers. Commuter industrial workers, unlike migrants, would have direct access to supplementary income from existing rural social and physical assets and economic and social cooperation with their original rural social network. Decreased proximity of employment may also increase married women's access to the labor market. Other women, children, and the elderly could participate in micro-industries and businesses to provide the infrastructure for an urbanizing countryside. Not only would local factories continue to benefit from the cost savings of the same rural subsidies generated by the two-sector solution, but worker compensation demands would be further limited by the elimination of expenditure on temporary urban housing and food as well as urban-rural transport.

With the spatial unification of the traditional and modern sectors of the economy, rural Bangladesh might eventually expect an increase in incentives for investment in high productivity agriculture and rural businesses, spurring economic growth and independence from export and subsistence production. While such a policy would not bring instantaneous wealth to the country, it could generate economic development opportunities that capitalize on traditional familial, social, and spatial linkages rather than destroying them.

Endnotes

1. *Thana* means police stand literally, but it serves as the sub-district level of political organization, with 490 in Bangladesh. Matlab itself is a small town, political headquarters for about 300 villages. Matlab Thana had 450,000 people in 1991, with slightly over half of that area covered by the ICDDR,B Demographic Surveillance System (Bangladesh Bureau of Statistics 1995).

2 Lying near the major industrial belt along the Dhaka-Chittagong Highway, Matlab is a major source of migrants

for Dhaka, the capital and by far the largest city (six hours away, population 9 million); Chittagong, the second largest city and major port (eight hours, 3 million); Comilla, the closest city (three hours, 300,000); Narayanganj, the historic center of the Bangladeshi textile industry (five hours, 500,000); and Chandpur, the district headquarters and a river port (1 hour, 150,000). Matlab is also one of a number of *thanas* that took advantage of social connections to manpower agencies and images of the southeast as more traditionally Muslim to tap into opportunities for migration to the Persian Gulf that emerged in the 1970's and 1980's and continue today. Manpower contacts and experience abroad ultimately led to major migrant flows to the Pacific Rim (particularly Malaysia and Singapore) and now numerous countries in the west.

3. This individual model was later extended to model the joint utility of multiple members of a migrating family unit (Mincer 1978).

4. In Bangladesh, the only jobs that offer high salaries and job-related benefits are in the government, professional, or international development sectors. These jobs typically require both high educational attainment and extensive urban social connections.

5. These costs of reproducing the next generation of worker, which in developed economies are built into urban wages, are instead subsidized by the rural sector of the economy, facilitating lower wages and ultimately lower prices for goods imported by wealthy countries from export-oriented economies.

6. This group is in some ways similar to the emerging urban classes in industrializing economies such as 19th century Europe and post-War East Asia, and, while the group is numerically small in Bangladesh, it transfers considerable investment capital and skill from rural to urban areas.

7. A secure family migrant or settler would not depend on his rural household for long-term support or security, but he would not necessarily divest of all rural obligations or cooperation. Rather, given his secure urban position, the focus of his urban-rural cooperation would shift to the city. He would be as likely to bring elderly parents to the city as to support them in the village; his investments would involve urban land, businesses and securities rather than rural land; and ultimately he would retire in the city (Kuhn 1999).

8. Such migrants may have wanted to aid their origin households and provide minimal support, but physical separation, social separation, and the increasing need to focus on urban security relationships led to an increased urban orientation, drawing resources away from potential rural transfers and contact (Portes 1972). As separation reinforced urban orientation, so being embedded in urban networks routed money and time away from urban-rural interaction.

9. Qualitative analysis suggests that occupational choices are also not defined by low income but by job tenure and job security. Numerous slum-dwelling family migrants actually had higher monthly earnings than individual migrants in salaried occupations. The salaries of many formal sector jobs remain low because employees are expected to consume at the lower rural cost of living, because they trade salary for job security and benefits, and because they expect long-term returns to experience and human capital.

10. The upcoming analysis looks at holdings of agricultural land, which indicate a migrant's potential agricultural income source in retirement, but homestead holdings may be just as important for migrants who plan on deriving retirement support from migrant children anyway. Not controlling for homestead holdings, indicators of the distribution of agricultural land measure not only their own direct effect, but also provide a proxy measure of the effect of homestead land, which is likely to be correlated.

11. Since most lenders prefer to keep debtors within reach, homestead lands are typically not taken unless a debtor offers no political or financial gain to a lender or there is a conflict between the two.

12 A *bari* is a courtyard of kin-connected households that provides a setting for economic and social cooperation.

13. This support comes from males living within the same household and in other households, but a male in the same household is better able to provide it within the conduct of similar activities for his own conjugal family.

14. While the 1982 census was collected during the middle of 1982, data from the latter half of 1982 are not used due to changes in the coding of migration variables. Data from 1983 are not used to maintain comparability to an analysis of the social process of family and individual migration, which uses 1984-1986 migration data for dependent variables and 1983-1985 for predictive measures of migration history (Kuhn 1999). Later surveillance data were deemed to be too distant from the 1982 census.

15. All models in the results section were also tested using a definition of migration as multiple members with at least one adult woman and at least one child requirement, and the results were robust to this definition change.

16. No migration was coded if the reason for migration was listed as "Marriage" or "To join with parents".

17. While the number of family migrant men was similar to the number of individual migrant men, family migration involved more people overall, since family migration episodes also included wives and children of the migrants. Very few individual migration episodes involved multiple migrants (16.7%), leading to a total of 537 migrants (mean 1.11 persons per episode). Over half of family migrant units send four or more people and a total of 2,321 migrants moved in the family migrant episodes (mean 3.91 migrants per episode).

18 While unmarried men who migrate are not of direct interest to this analysis, it should be noted that unmarried migrants almost always eventually marry, at which point they resolve their situations, becoming either return migrants, married individual migrants (if their wives remain in the rural area), or migrants with family in the city (if their wives follow). While the processes of spousal unification in the city is a more complex process than bringing a spouse at the time of migration, the same logic and variables are important in structuring the decision (Kuhn 1999).

19 Men from nuclear households are typically heads of those households (93%). Married men who are not heads still typically serve leadership roles in their households since the *de jure* heads are usually elderly, widowed mothers or fathers. These men show no significant differences in migration pattern from heads of nuclear households.

20 Although land holding per person would better reflect the household's productive capacity, total land holding is used to reflect the more important role of access to heritable land assets. A land per person variable would also introduce correlation with the main effect household size variable. In the case of the two landless categories, land holdings and land holdings per person will be analogous.

21. The recently formed petroleum industry, by creating low-wage but formal jobs in non-urban areas, could also accelerate this process by creating a new source of capital for rural land purchases.

Table 1:

Variables Included in Predictive Models: Definitions, Means, and Standard Deviations

One Observation per Person-Year

Variable[*]	Description	Mean	SD
Migration in year	0 = Did not migrate during year	0.989	0.104
	1 = Individual migration during year	0.005	0.070
	2 = Family migration during year	0.006	0.078
Household Role/Structure:			
Nuclear	Member of nuclear household	0.568	0.495
Extended non-head	Member of extended household – not head	0.250	0.433
Extended head	Member of extended household – head	0.182	0.386
Age <35	Respondent's age less than 35	0.342	0.474
35-50	Respondent's age between 35 and 49	0.310	0.463
50+	Respondent's age 50 or above	0.348	0.476
Hindu	Respondent is of Hindu Religion	0.158	0.365
Fisherman	Respondent's occupation is fisherman	0.059	0.236
Household Size	Number of members in household	6.828	3.061
Single Males = 0	No unmarried adult males in household	0.496	0.500
= 1	One unmarried adult male in household	0.306	0.461
= 2	Two unmarried adult males in household	0.145	0.353
>= 3	Three or more unmarried adult males in household	0.052	0.222
Land[#]	Household land ownership (in acres)	1.163	1.744
Land 4th quartile w/o rental	Landless household with no rental arrangement	0.170	0.375
4th quartile w/ rental	Landless household with rental arrangement	0.050	0.219
3rd quartile w/ rental	0.0 < Land <= 0.5	0.262	0.490
2nd quartile w/ rental	0.6 <= Land <= 1.2	0.226	0.418
1st quartile w/ rental	Land >=1.3	0.292	0.455
Education = 0	No education completed	0.492	0.500
= 1-4	Completed 1-4 years of schooling.	0.213	0.410
= 5-9	Completed 5-9 years of schooling.	0.217	0.412
= 10+	Completed Secondary School Certificate	0.078	0.268
Village Land Quartile	Acres of land owned in village over persons	1.604	0.453
4th quartile	0.0 < Village Land < 1.3	0.247	0.431
3rd quartile	1.3 <= Village Land <1.57	0.249	0.432
2nd quartile	1.57 <= Village Land <= 1.85	0.238	0.426
1st quartile	Village Land > 1.85	0.266	0.442

* - All variables come from 1982 census file except dependent variable, which comes from 1984 to 1986 DSS migration event files.

\# - Median is 0.6

Source – DSS Migration Histories (1984-86) and 1982 Census

	Calendar Year								
	1984			**1985**			**1986**		
Year in Sample	Number of married men	Number of individual migrants	Number of family migrants	Number of married men	Number of individual migrants	Number of family migrants	Number of married men	Number of individual migrants	Number of family migrants
1st	32,858	142	201	1,239	7	3	1,280	16	4
2nd	---	---	---	31,366	147	169	1,205	10	12
3rd	---	---	---	---	---	---	30,040	163	204
Total	32,858	142	201	32,606	154	172	32,525	189	220

Table 2:
Sample Size and Dependent Variable Outcome
By Calendar Year and Year in Sample

Source: DSS Migration Histories (1984-86)

	Table 3:			
	Relationship to Household Head			
	Percentage of Adult Males, by Migrant Group			
Relationship	Non-Migrant	Individual	Family	Total
Head	70.0%	47.6%	62.2%	69.6%
Son	23.7%	43.5%	31.9%	24.1%
Grandson	0.2%	0.6%	0.0%	0.2%
Brother	3.7%	4.8%	3.8%	3.7%
Cousin	0.2%	0.6%	0.5%	0.2%
Father	1.3%	0.6%	0.3%	1.3%
Other	1.0%	2.2%	1.4%	1.0%
N	34,299	485	593	35,377

Source: DSS Migration Histories (1984-86) and 1982 Census

Table 4
Multinomial Logistic Regression Model
Individual Migration or Family Migration vs. No Migration in Given Year
Models 1 and 2

	Model 1				Model 2			
	Individual Migration		Family Migration		Individual Migration		Family Migration	
	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)
	Coeff..	S.E.	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.
Household Role/Structure:								
Nuclear	—	—	—	—	—	—	—	—
Extended non-head	0.725*	0.133	0.212	0.127	0.740*	0.133	0.199	0.126
Extended head	-0.181	0.199	-0.734**	0.200	-0.146*	0.198	-0.703*	0.199
Age < 35	—	—	—	—	—	—	—	—
35-50	-0.498*	0.126	-0.171	0.105	-0.535*	0.126	-0.224+	0.104
50+	-1.014*	0.157	-0.987*	0.144	-1.014*	0.157	-0.924*	0.144
Hindu	-0.775*	0.199	-0.371+	0.149	-0.915*	0.200	-0.479#	0.150
Fisherman	-1.887#	0.599	-1.257+	0.326	-1.662#	0.599	-1.071#	0.327
Household Size	-0.108*	0.023	-0.041+	0.021	-0.108*	0.023	-0.039	0.021
Single Males = 0	—	—	—	—	—	—	—	—
= 1	0.042	0.115	-0.191	0.108	0.058	0.115	-0.163	0.108
= 2	0.202	0.154	0.056	0.143	0.181	0.155	0.054	0.144
>= 3	0.517+	0.227	0.128	0.230	0.446+	0.228	0.051	0.231
Land 4th quartile w/o rental	—	—	—	—	—	—	—	—
4th quartile w/ rental	-0.219	0.234	-0.397+	0.189	-0.266	0.234	-0.408+	0.189
3rd quartile w/ rental	-0.094	0.144	-0.478*	0.116	-0.206	0.145	-0.538*	0.117
2nd quartile w/ rental	0.005	0.148	-0.518*	0.126	-0.247	0.152	-0.694*	0.129
1st quartile w/ rental	-0.219	0.154	-0.748*	0.134	-0.640*	0.163	-1.111*	0.143
Education 0					—	—	—	—
1-4					0.402#	0.130	0.123	0.119
5-9					0.815*	0.120	0.385#	0.115
10+					1.048*	0.154	1.193*	0.127
Constant	-3.546*	0.200	-3.743*	0.181	-3.740*	0.203	-3.877*	0.183
Events	485		593		485		593	
Observations	97990		97990		97990		97990	
Log Likelihood Chi-Sq	534.6				677.1			
DF	28				34			

+ = Variable Significant at p<0.05 level
\# = Variable Significant at p<0.01 level
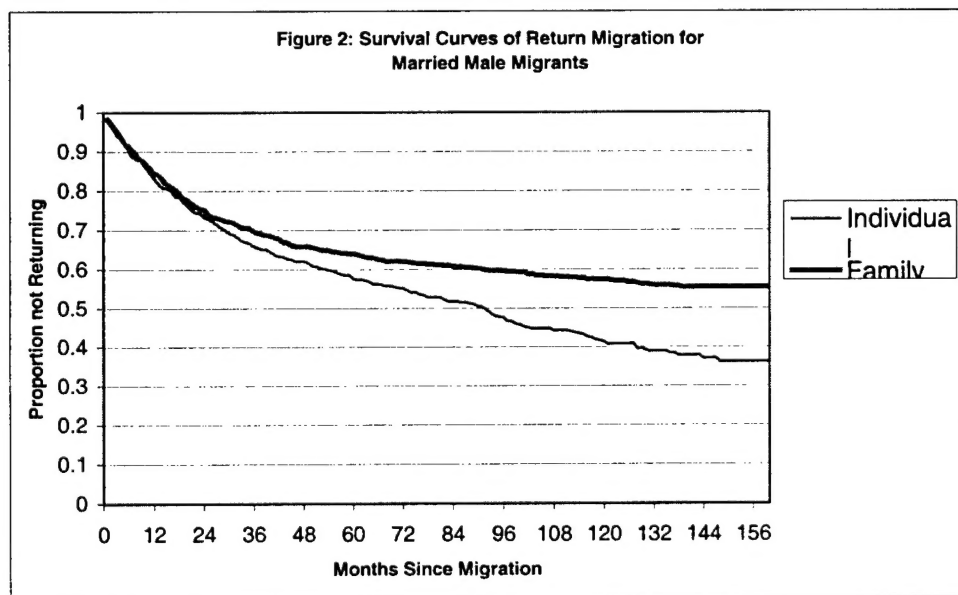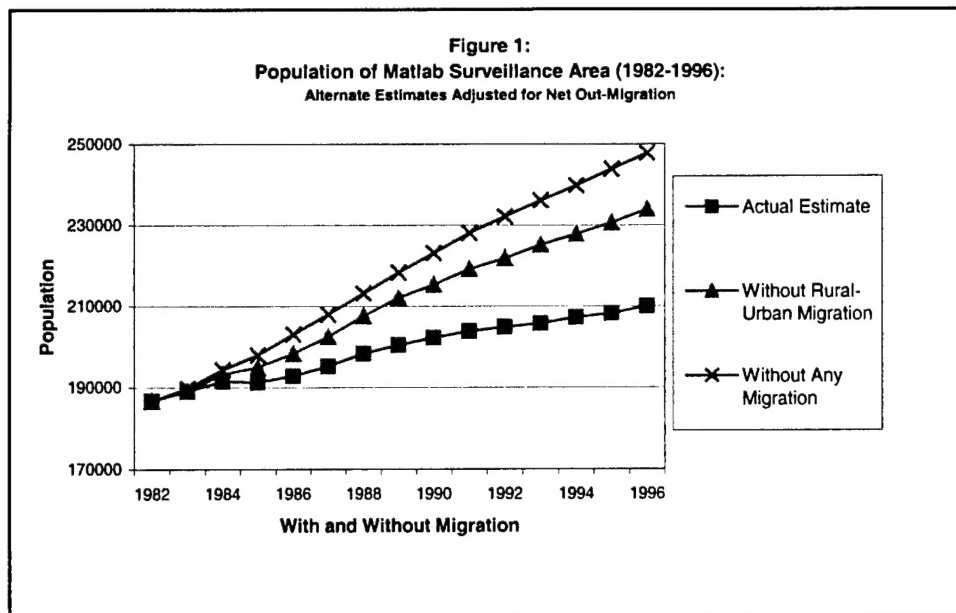* = Variable Significant at p<0.001 Level

Table 5
Multinomial Logistic Regression Model
Individual Migration or Family Migration vs. No Migration in Given Year
Models 3 and 4

	Model 3				Model 4			
	Individual Migration		Family Migration		Individual Migration		Family Migration	
	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)
	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.
Household Role/Structure:								
Nuclear	—	—	—	—	—	—	—	—
Extended non-head	0.736*	0.133	0.194	0.126	0.734*	0.133	0.193	0.126
Extended head	-0.144	0.198	-0.701*	0.199	-0.146	0.198	-0.701*	0.199
Age < 35	—	—	—	—	—	—	—	—
35-50	-0.540*	0.126	-0.225+	0.104	-0.539*	0.126	-0.225+	0.104
50+	-1.023*	0.157	-0.929*	0.144	-1.023*	0.157	-0.929*	0.144
Hindu	-0.794*	0.204	-0.371+	0.149	-0.791*	0.203	-0.466#	0.154
Fisherman	-1.618#	0.599	-1.257+	0.326	-1.594#	0.599	-1.056#	0.328
Household Size	-0.107*	0.023	-0.040+	0.021	-0.107*	0.023	-0.040	0.021
Single Males = 0	—	—	—	—	—	—	—	—
= 1	0.063	0.115	-0.162	0.108	0.063	0.115	-0.160	0.108
= 2	0.193	0.155	0.056	0.144	0.190	0.155	0.055	0.144
>= 3	0.453+	0.228	0.056	0.231	0.454+	0.228	0.060	0.231
Land 4th quartile w/o rental	—	—	—	—	—	—	—	—
4th quartile w/ rental	-0.272	0.234	-0.391+	0.189	-0.278	0.235	-0.420+	0.190
3rd quartile w/ rental	-0.230	0.146	-0.522*	0.116	0.276	0.289	-0.233	0.188
2nd quartile w/ rental	-0.285	0.153	-0.666*	0.126	0.223	0.295	-0.395+	0.198
1st quartile w/ rental	-0.680	0.165	-1.077*	0.145	-0.166*	0.304	-0.771*	0.211
Education 0	—	—	—	—	—	—	—	—
1-4	0.410#	0.130	0.126	0.119	0.411#	0.130	0.131	0.119
5-9	0.816	0.120	0.384#	0.115	0.820*	0.120	0.393#	0.115
10+	1.064*	0.154	1.196*	0.128	1.066*	0.154	1.203*	0.128
Village Land (If Model 4, Landed Only)								
4th quartile	—	—	—	—	—	—	—	—
3rd quartile	0.452#	0.148	0.235+	0.115	0.256	0.170	0.112	0.142
2nd quartile	0.600*	0.146	-0.171	0.129	0.437#	0.164	-0.338+	0.156
1st quartile	0.283	0.154	-0.048	0.126	0.141	0.170	-0.227	0.149
Village Land if Landless								
4th quartile					—	—	—	—
3rd quartile					0.966#	0.293	0.420+	0.189
2nd quartile					1.047#	0.302	0.119	0.219
1st quartile					0.683+	0.347	0.322	0.221
Constant	-4.096*	0.229	-3.913*	0.198	-4.467*	0.203	-3.877*	0.183
Events	485		593		485		593	
Observations	97990		97990		97990		97990	
Log Likelihood Chi-Sq	710.2				720.2			
DF	40				46			

+ = Variable Significant at p<0.05 level
# = Variable Significant at p<0.01 level
* = Variable Significant at p<0.001 Level

Figure 1:
Population of Matlab Surveillance Area (1982-1996):
Alternate Estimates Adjusted for Net Out-Migration

With and Without Migration

Figure 2: Survival Curves of Return Migration for Married Male Migrants

Bibliography

Afsar, Rita (1994). Internal Migration and Women: An Insight into Causes, Consequences, and Policy Implications. *The Bangladesh Development Studies* 2 & 3: 217-243.

Bangladesh Bureau of Statistics (1995). *Bangladesh Statistical Pocketbook.* Dhaka, Bangladesh.

Cain, Mead (1978). The Household Life Cycle and Economic Mobility in Rural Bangladesh. *Population and Development Review* 4:421-438.

Caldwell, John C. (1982). *Theory of Fertility Decline.* London: Academic Press.

Chen, Lincoln C., A.K.M. Alauddin Chowdhury, and Sandra L. Huffman (1979). Seasonal Dimensions of Energy Protein Malnutrition in Rural Bangladesh: The Role of Agriculture, Dietary Practices, and Infection. *Ecology of Food and Nutrition*, 8: 175-187.

Connell, John, Biplab Dasgupta, Roy Laishley, and Michael Lipton (1976). *Migration from Rural Areas: The Evidence from Village Studies.* Delhi. Oxford University Press.

Durkheim, Emile (1951) [1897]. *Suicide.* Glencoe: Free Press.

Fauveau, Vincent (Ed.) (1994). *Matlab: Women, Children and Health.* Dhaka, Bangladesh: ICDDR,B

Goode, William J. (1963). *World Revolution and Family Patterns.* New York: Free Press.

Hirschman, Albert O. (1958). *The Strategy of Economic Development.* New Haven: Yale University Press.

Jahangir, Borhanuddin Khan (1979). *Differentiation Polarization and Confrontation in Rural Bangladesh.* Center for Social Studies, University of Dhaka.

de Janvry, Alain and Carlos Garramon (1977). The Dynamics of Rural Poverty in Latin America. *Journal of Peasant Studies* 5(2):206-216.

Jensen, Eirik G. (1987). *Rural Bangladesh: Competition for Scarce Resources.* Dhaka, Bangladesh: University Press Limited.

Kuhn, Randall S. (1999). *The Logic of Letting Go: Family and Individual Migration from Rural Bangladesh.* Unpublished Doctoral Thesis. Philadelphia: University of Pennsylvania.

Kuhn, Randall S. (2000a). Understanding the Social Process of Rural-Urban Migration in Bangladesh. Unpublished manuscript.

Kuhn, Randall (2000b). "Elderly Remittances and Urban-Rural Security Relationships in Bangladesh". Paper Presented to Conference on Thinking Longitudinally: Issues in the Design and Analysis of Panel Data for Aging Research, February 25, 2000: Singapore.

Lewis, Oscar (1966). "The Culture of Poverty". *Scientific American* 215(4):19-25.

Lewis, W. Arthur (1954). Economic Development with Unlimited Supplies of Labor. *The Manchester School of Economic and Social Studies* 22:139-191.

Lipton, Michael (1980). Migration from Rural Areas of Poor Countries: The Impact and on Rural Productivity and Income Distribution. *World Development* 8:1-24.

Lomnitz, Larissa (1977). *Networks and Marginality: Life in a Mexican Shantytown*. New York: Academic Press.

Lucas, Robert E B. and Oded Stark (1985, October). Motivations to Remit: Evidence from Botswana. *Journal of Political Economy* 93:901-18.

Massey, Douglas S. and Emilio A. Parrado (1994). Migradollars: The Remittances and Savings of Mexican Migrants to the United States. *Population Research and Policy Review*. 13:3-30.

Massey, Douglas S. and Kristin Espinosa (1997). What's Driving Mexico-US Migration: A Theoretical, Empirical and Policy Analysis. *American Journal of Sociology* 102:939-999.

Meillassoux, Claude (1972). From Reproduction to Production. *Economy and Society* 1:93-105.

Mincer, Jacob (1971). Family Migration Decisions. *Journal of Political Economy*. 8(2):749-773.

Nabi, A.K.M. Nurun (1992). Dynamics of Internal Migration in Bangladesh. *Canadian Studies in Population* 19(1):81-98.

Perlman, Janice E. (1976). *The Myth of Marginality: Urban Poverty and Politics in Rio de Janeiro*. Berkeley: University of California Press.

Piore, Michael and Charles Sabel (1984). *The Second Industrial Divide: Possibilities for Prosperity*. New York: Basic Books.

Portes, Alejandro (1972). Rationality in the Slum: An Essay on Interpretive Sociology. *Comparative Studies in Society and History* 14:268-286.

Portes, Alejandro and John Walton (1981). *Labor, Class, and the International System*. New York. Academic Press.

Ranis, Gustav and J.C.H. Fei (1961). A Theory of Economic Development. *American Economic Review* 51:533-565.

Shaw, Annapurna (1988, January). The Income Security Function of the Rural Sector: The Case of Calcutta, India. *Economic Development and Cultural Change* 36:303-14.

Sjaastad, Larry A. (1962). The Costs and Returns of Human Migration. *Journal of Political Economy* 70:80-93

Stark, Oded (1982). Research on Rural-to-Urban Migration in LDCs: The Confusion Frontier and Why We Should Pause to Rethink Afresh. *World Development* 10(1):63-70.

Stark, Oded and David E. Bloom (1985). The New Economics of Labor Migration. *American Economic Review* 75:173-178.

Stark, Oded and Eliakim Katz (1986). "Labor Migration and Risk Aversion in Less Developed Countries". *Journal of Labor Economics* 4:134-149.

Stark, Oded and David Levhari (1982). On Migration and Risk in LDCs. *Economic Development and Cultural Change* 31:191-196.

STATA Corporation (1997). *Stata Reference Manual: Release 5*. College Station, TX: Stata Press.

Taylor, J. Edward and T. J. Wyatt (1996). The Shadow Value of Migrant Remittances, Income and Inequality in a Household-farm Economy. *The Journal of Development Studies* 32(6):899-912.

Thornton, Arland and Hui-Sheng Lin (1994). *Social change and the family in Taiwan*. Chicago, IL: University of Chicago Press.

Todaro, Michael P. (1969). A Model of Labor Migration and Urban Unemployment in Less-Developed Countries. *The American Economic Review* 59:138-148.

United Nations (1996). *World Urbanization Prospects: The 1996 Revision*. New York: United Nations Secretariat, Department of Economic and Social Affairs, Population Division.

Wirth, Louis (1938). Urbanism as a way of life. *American Journal of Sociology* 44: 1-24.

Wolpe, Harold (1975). The Theory of Internal Colonialism: The South African Case. In *Beyond the Sociology of Development,* eds. Ivar Oxaal, Tony Barnett, and David Booth (London: Routledge).